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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/726,179

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Robert S. Oswald

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12/27/2005

BP America Inc.
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EXAMINER

HOANG, QUOC DINH

ART UNIT

PAPER NUMBER

2818

DATE MAILED: 12/27/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

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Office Action Summary	Application No. 10/726,179	Applicant(s) OSWALD ET AL.	
	Examiner Quoc D. Hoang	Art Unit 2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 17 October 2005.
 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 28-36, 41-44 and 49-52 is/are pending in the application.
 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
 5) ☐ Claim(s) _____ is/are allowed.
 6) ☒ Claim(s) 28-36, 41-44 and 49-52 is/are rejected.
 7) ☒ Claim(s) 50 is/are objected to.
 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 a) ☐ All b) ☐ Some * c) ☐ None of:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Response to Amendment

1. Amendment filed on 10/17/2005 has been entered and made of record as Paper No. 1005. In Amendment, claims 49-52 are newly added. Claims 28-36, 41-44, and 49-52 are pending in the application.

Applicants' remarks have been considered.

Claim Objections

2. Claim 50 is objected to because of the following informalities: claim 50, line 2 "visible layer" should be --visible laser--. Appropriate correction is required.

Claim Rejections - 35 USC § 103

3. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 28-35, 41, 42, 44 and 49-52 are rejected under 35 U.S.C. 103(a) as being unpatentable over Catalano et al (U.S. Pat No. 4,667,058 hereafter "Catalano") in view of Kishi et al (U.S. Pat No. 4,795,500 hereafter "Kishi").

Regarding claim 28, Catalano teaches a thin film partially transparent photovoltaic module 10 comprising series-connected cells, at least one semiconductor layer 18', a metal contact layer 22', and interconnects connecting the series-connected cells, the module comprising a plurality of laser scribes 26/28 at least through the metal contact layer 22' positioned in a direction that crosses the direction of the interconnects

and wherein the laser scribes 26/28 provide for the partial transparency of the photovoltaic module 10 (col. 3, line 29 through col. 5, line 21, and Figs. 1-5). *Note that some elements of the module 10 formed by transparent material, such as thin film 13.*

Catalano teach the partially transparent photovoltaic module, but does not teach module having a transmission of light at least about 5 percent, wherein the scribes provide for the partial transparency of the photovoltaic module

However, Kishi teaches the photovoltaic module having a transmission of at least about 5 percent, wherein the scribes 6 provide for the partial transparency of the photovoltaic module. *Note the holes 6 partially transmit the light coming through the transparent substrate* (col. 23, line 40 through col. 3, line 43 and Figs. 1-3, total area of the holes 6 is 5-30% of the light admitting region). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to partially transmit light through the photovoltaic module of the purpose of lighting the inside of a room or a car as taught by Kishi, column 3, lines 20-23. Furthermore, Kishi does not teach "laser scribes" to form the holes 6. However, the limitation "**laser scribes**" is taken to be a product by process limitation and consider non-limitation. In a product-by-process claim, it is the patentability of the claimed product and not of the recited process steps which must be established. Therefore, when the prior art discloses a product which reasonably appears to be identical with or only slightly different than the product claimed in a product-by process claim, a rejection based on sections 102 or 103 is fair. The Patent

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Office is not equipped to manufacture products by a myriad of processes put before it and then obtain prior art product and make physical comparisons therewith. In re Brown, 173 USPQ 685 (CCPA 1972). Also, a product by process claim directed to the product per se, no matter how actually made, In re Hirao, 190 USPQ 1 S at 17 (footnote 3). See In re Fessman, 180 USPQ 324, 326 (CCPA 1974); In re Marosi et al., 218 USPQ 289, 292 (Fed. Cir. 1983); and particularly In re Thorpe, 227 USPQ 964, 966 (Fed. Cir. 1985), all of which make it clear that it is the patentability of the final structure of the product "gleaned" from the process steps, which must be determined in a "product by process" claim, and not the patentability of the process. See also MPEP 2113. Moreover, an old and obvious product produced by a new method is not a patentable product, whether claimed in "product by process" claims or not.

Regarding claim 29, Catalano teaches wherein each scribe 28 has a width of about 0.025 to about 0.05 mm (col. 5, lines 21-40, and Fig. 3). Although Catalano's width (0.025 to about 0.05 mm) is not the claimed range (0.01 to about 0.5 mm), this does not define patentable over Catalano since the thickness is well known processing variable and the discovery of the optimum or workable range involves only routine skill in the art.

Regarding claim 30, Catalano teaches wherein each scribe 28 has a width of about 0.025 to about 0.05 mm (col. 5, lines 21-40, and Fig. 3). Although Catalano's width (0.025 to about 0.05 mm) is not the claimed range (0.05 to about 0.2 mm), this does not define patentable over Catalano since the thickness is well known processing

variable and the discovery of the optimum or workable range involves only routine skill in the art.

Regarding claim 31, Catalano does not teaches wherein the scribes are spaced from each other about 0.5 to about 5 mm.

However, Kishi teaches wherein the scribes 6 are spaced from each other at small distance D (col. 4, lines 27-51 and Fig. 9). *Note the holes 6 are considered the scribes*. Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to space the scribes in order to increase the amount of transmitted light as taught by Kishi, column 4, lines 45-47. Although Kishi's distance is not the claimed range (0.5 to about 5 mm), this does not define patentable over Catalano since the thickness is well known processing variable and the discovery of the optimum or workable range involves only routine skill in the art.

Regarding claim 32, Catalano does not teaches the having a transmission of at least about 10 percent.

However, Kishi teaches the photovoltaic module having a transmission of at least about 10 percent (col. 23, line 40 through col. 3, line 43 and Figs. 1-3). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to partially

transmit light through the photovoltaic module of the purpose of lighting the inside of a room or a car as taught by Kishi, column 3, lines 20-23.

Regarding claim 33, Catalano does not teaches the having a transmission of at least about 20 percent.

However, Kishi teaches the photovoltaic module having a transmission of at least about 20 percent (col. 23, line 40 through col. 3, line 43 and Figs. 1-3). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to partially transmit light through the photovoltaic module of the purpose of lighting the inside of a room or a car as taught by Kishi, column 3, lines 20-23.

Regarding claim 34, Catalano teaches the scribes, but does not teaches the scribes are in the form of connected holes.

However, Kishi teaches wherein the scribes are in the form of connected holes 6 (col. 2, lines 65-67 and Fig. 1). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide the scribes in the form of connected holes in order to maximize the amount of transmitted light through the module as taught by Kishi, column 4, lines 45-47.

Regarding claim 35, Catalano does not teaches wherein the holes are rounds and have a diameter of about 0.01 to about 0.2 mm.

However, Kishi teaches the holes are round and have a diameter of about 0.1 to 3 mm (col. 2, lines 65-67 and Fig. 1). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide the scribes in the form of connected holes in order to maximize the amount of transmitted light through the module as taught by Kishi, column 4, lines 45-47. Although Kishi's diameter of the hole is not the claimed range (0.01 to about 0.2 mm), this does not define patentable over Catalano since the thickness is well known processing variable and the discovery of the optimum or workable range involves only routine skill in the art.

Regarding claims 41 and 42, Catalano does not teach a window, sun screens and canopies comprising the photovoltaic module.

However, Kishi teaches a window or sun screens and canopies comprising the photovoltaic module (col. 1, lines 38-50 and col. 3, lines 20-23). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide window or sun screens and canopies comprising the photovoltaic module for the purpose of lighting the inside of a room or a car as taught by Kishi, column 4, lines 20-23.

Regarding claim 44, Catalano does not teach wherein the distance between at least a portion of the scribes is graded.

However, Kishi teaches the distance D between at least a portion of the scribes 6 is graded (col. 4, lines 27-51 and Fig. 7). Since Catalano and Kishi are all from the same field of endeavor, the purpose disclosed by Kishi would have been recognized in the pertinent art of Catalano. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide a graded distance of the scribes in order to maximize the amount of transmitted light through the module as taught by Kishi, column 4, lines 45-47.

Regarding claim 49, Catalano teaches wherein the semiconductor layer 18' comprises amorphous silicon (col. 4, line 17).

Regarding claim 50, Catalano teaches wherein the laser scribes are formed by a visible laser (col. 5, lines 22-39, wavelength of 0.53 micrometers).

Regarding claim 51, Catalano teaches wherein the laser is a green laser (col. 5, lines 22-39).

Regarding claim 52, Catalano teaches wherein the laser is a frequency doubled Nd-YAG (col. 5, lines 22-39).

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claims 36 and 43 are rejected under 35 U.S.C. 103(a) as being unpatentable over Catalano et al (U.S. Pat No. 4,667,058 hereafter "Catalano") and Kishi et al (U.S. Pat No. 4,795,500 hereafter "Kishi") as applied to claim 28 above, and further in view of Hayashi et al (U.S. Pat No. 6,632,993 hereafter "Hayashi").

Regarding claim 36, Catalano and Kishi do not teach bus bars located adjacent to the first and last cell in the module.

However, Hayashi teaches bus bars 12 located adjacent to the first and last cells 10 in the module and wherein the laser scribes 22 extend across the surface of the photovoltaic module but not including the bus bars 12 (col. 5, lines 60-65, col. 9, lines 10-20 and Figs. 1-2). Since Catalano, Kishi and Hayashi are all from the same field of endeavor, the purpose disclosed by Hayashi would have been recognized in the pertinent art of Catalano and Kishi. It would have been obvious to a person of ordinary skill in the art at the time of the invention was made to provide bus bars adjacent to the first and last cells in the module in order to provide electrical terminal for the cells.

Regarding claim 43, Catalano and Kishi do not teach wherein the scribes are grouped in bands of closely spaced scribe lines separated by bands having few or no scribes.

However, Hayashi teaches wherein the scribes 22 are grouped in bands of closely spaced scribe lines separated by bands having no scribes (col. 5, lines 60-65, col. 9, lines 10-20 and Figs. 1-2). Since Catalano, Kishi and Hayashi are all from the same field of endeavor, the purpose disclosed by Hayashi would have been recognized in the pertinent art of Catalano and Kishi. It would have been obvious to a person of

ordinary skill in the art at the time of the invention was made to provide bands of scribes in order to construct a series array as taught by Hayashi, column 5, line 67.

Conclusion

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Quoc Hoang whose telephone number is (571) 272-1780. The examiner can normally be reached on Monday-Friday from 8.00 AM to 5.00 PM.

If attempt to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571) 272-1787. The fax phone numbers of the organization where this application or proceeding is assigned are (703) 872-9306 for regular communications and (703) 872-9306 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.


Quoc Hoang
Patent examiner/AU 2818


David Nelms
Supervisory Patent Examiner
Technology Center 2800